

2025 SD STEAM Educators Conference

Hands on Geometry with Quilts

Imathgination LLC

Yana Mohanty



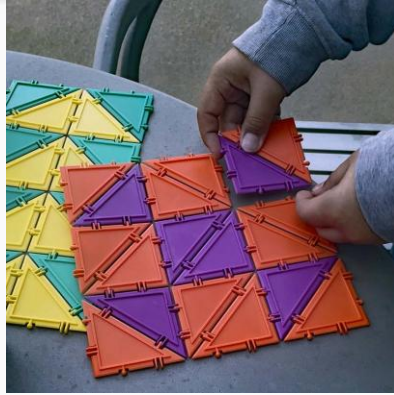
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Hands on Geometry with Quilts: Yana Mohanty



- Education:
 - Ph. D. in Mathematics, U.C.S.D.
 - M.S. in Electrical Engineering, University of MA, Amherst
 - B.S. in Electrical Engineering, U.C.L.A.
- Organization: Imathgination LLC
- Favorite quote: *Mathematics is a part of physics. Physics is an experimental science, a part of natural science. Mathematics is the part of physics where experiments are cheap.* –V.I. Arnold.
- Outside Interests & Fun Facts
 - I was born in Odessa, Ukraine
 - I love origami and other paper crafts.

Hands on Geometry with Quilts: Summary



- **Provider Name:** Imathgination LLC
- **Workshop Type:** STEAM in a Box | STEAM Series
- **Brief Description:**

Learn geometry by creating quilt patterns and assembling them into larger patterns or 3D solids.
- **Intended Audience:**
 - **Grades:** Elementary, Middle, High School, etc.
 - **Program Types:** School-Day Programs, After-School Programs, summer camps.

Hands on Geometry with Quilts

Meet your medium!



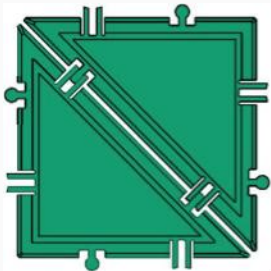
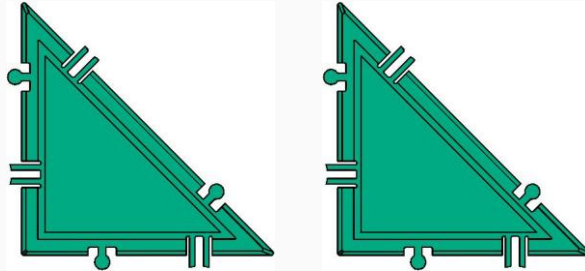
45-45-90 triangle



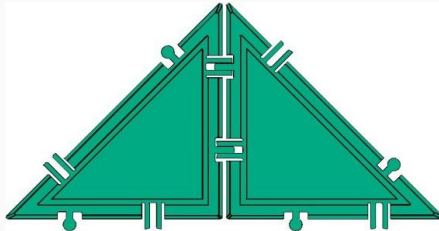
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Warm-up Activity 1

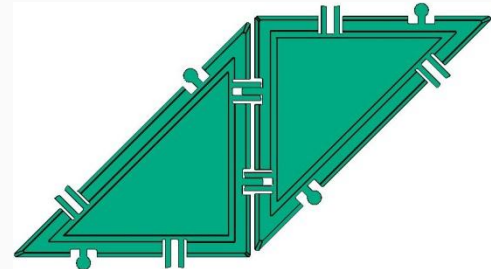
What shapes can you create by snapping together two of these triangles?



Square



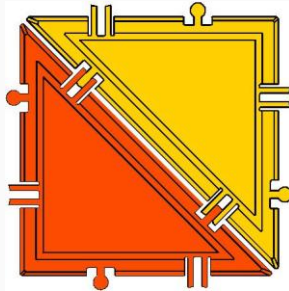
Right isosceles triangle



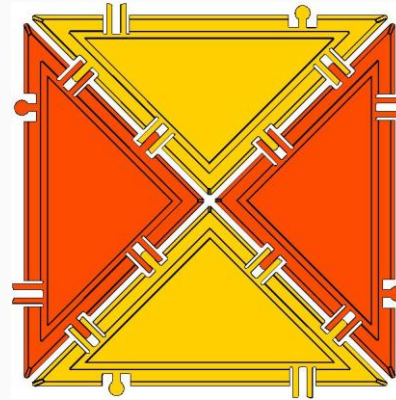
Parallelogram

Warm-up Activity 2

1. Take 2 bags of tiles in 2 different colors of your choice.
2. Use both colors to make squares in 2 different sizes:
 - a. 2-tile square
 - b. 4-tile square



To quilters these are: **Half-square block (HST)**



Quarter-square block (QST)

Examples of quilts based on HST



Karlene Falker, Michigan



Irena Swanson Ph.D., Indiana
Math professor at Purdue University

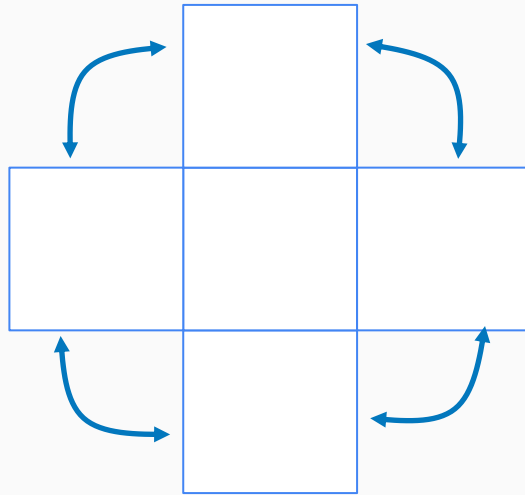
Example of a quilt based on QST



Gees Bend, Alabama

Joining the blocks

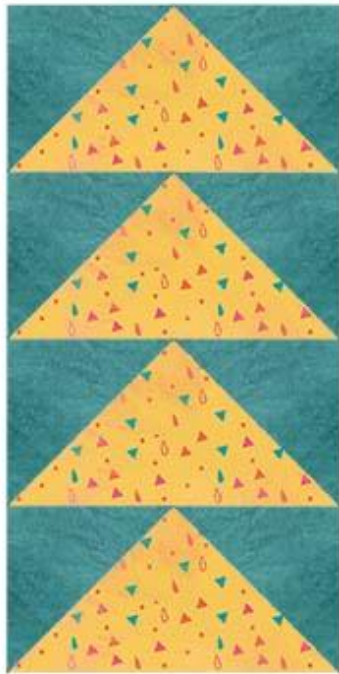
With Geometiles, you can join the blocks to make a 2D surface or a cube.



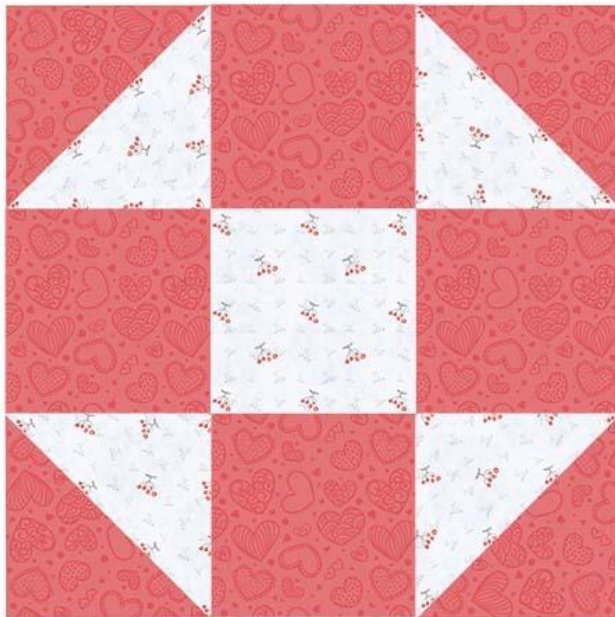
**Make the lid separately,
then attach.**

Make a cube with HST sides and another one with QST sides

Let's make some more classic quilt blocks



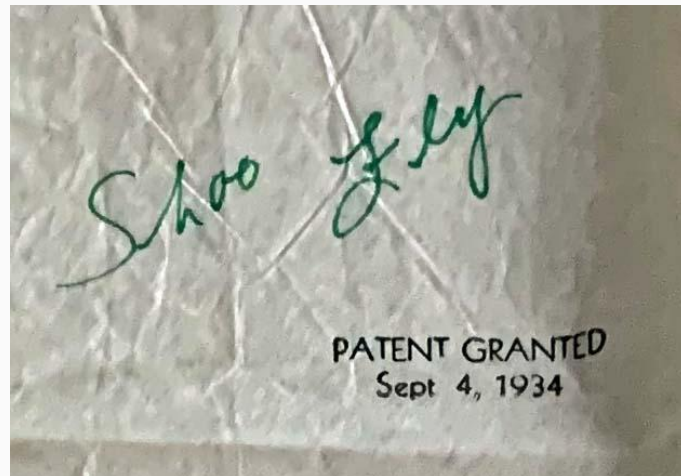
Flying geese



Shoo fly

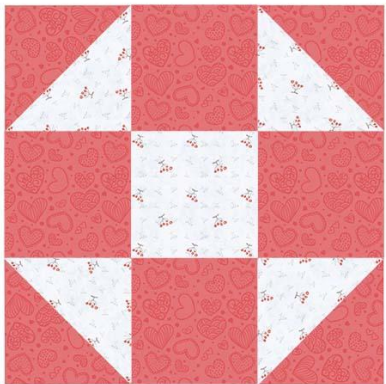


Shoo fly 1934 pattern

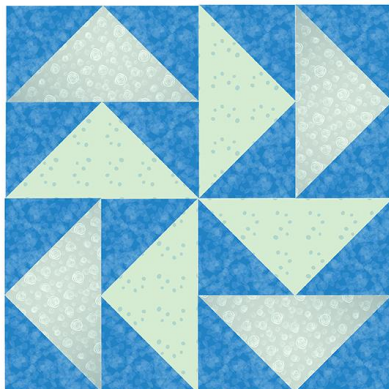




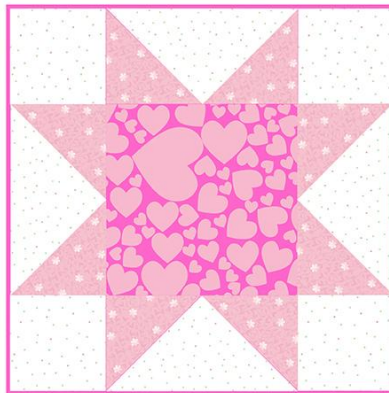
Pick a pattern & join in a larger quilt or cube



Shoo fly



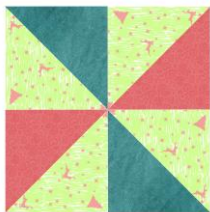
Dutchman's puzzle



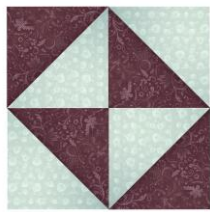
Sawtooth Star



Card trick



Pinwheel



Broken
dishes



Four
patch



Laura Coia
sewveryeasy.com

So much more to explore!



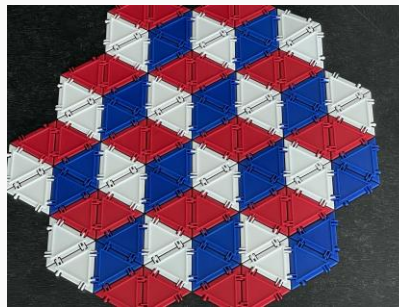
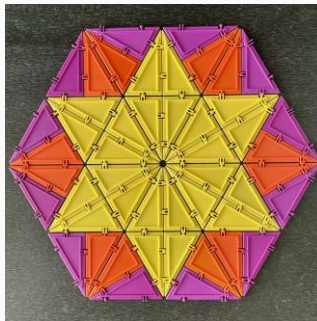
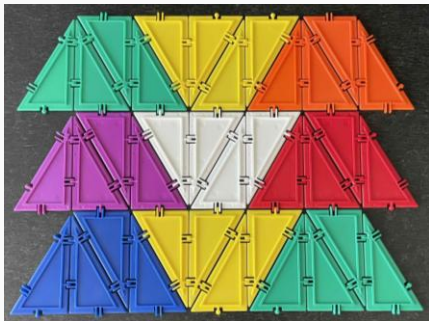
Charm quilt at Mingei Museum



Night sky by Jaybird Quilts



Tumbling Blocks by Karlene Falker



Stay in touch!



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www.geometiles.com

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2025 SDSE: Activity Close

Q & A



Survey



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